SECTION 08 71 00

DOOR HARDWARE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Hardware for doors.

B. Thresholds.

C. Gasketing.

1.2 PRODUCTS SUPPLIED BUT NOT INSTALLED UNDER THIS SECTION

A. Supply templates to Section 08 11 00 for door and frame preparation.

1.3 RELATED SECTIONS

A. Section 08 11 00 - Hollow Metal Door and Frames: Steel door and glazed light frames.

1.4 REFERENCES

A. ANSI A115.1 through A115.4 - Door and frame preparation standards.

B. ANSI A156.1 through A156.20 - Standards for various hardware items.

C. BHMA - Builders' Hardware Manufacturers Association.

D. CBC - California Building Code, 2001 edition.

E. DHI - Door and Hardware Institute.

1.5 SUBMITTALS

A. Coordinate hardware submittals with submittals of related work. Include product data, samples, and shop drawings of other work affected by door hardware and other information necessary to coordinated review of hardware submittals with the hardware submittals.

B. Submit the following at the earliest possible date to ensure that fabrication of other work dependent upon acceptance of hardware submittals and critical to the project construction schedule is not delayed.

C. Hardware Schedule: Indicate complete designation of every item required for each door or opening organized into hardware sets and coordinated with doors, frames, and related work to ensure proper size, thickness, hand, and function of door hardware. Include the following information:

1. Type, style, function, size and finish of each hardware item.

2. Name and manufacturer of each hardware item.

3. Fastenings and other pertinent information.

4. Location of each hardware set cross referenced to indications on Drawings on floor plans and in door schedule.

5. Mounting locations for hardware.

6. Door and frame sizes and materials.

7. Keying information; match existing and coordinate with building Owner.

D. Product Data: Provide manufacturer's technical product data on each item of hardware. Include parts lists, templates, finishes, maintenance of operating parts and other information necessary to show compliance with Contract Documents.

E. Samples: Provide, as requested, samples of hardware items in finish indicated and tagged with full description coordinated with hardware schedule. Samples will be returned to Contractor.

1.6 OPERATION AND MAINTENANCE DATA

A. Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

B. Provide instructions for continued adjustment, maintenance, and removal and replacement of door hardware by Owner's personnel.

1.7 QUALITY ASSURANCE

A. Obtain each type of hardware, such as hinges or closers, from a single manufacturer except as otherwise specified.

1.8 QUALIFICATIONS

A. Manufacturers: Companies specializing in manufacturing door hardware each with minimum 5 years documented experience.

B. Hardware Supplier: Company specializing in supplying institutional door hardware and electrified door hardware with minimum 5 years documented experience and employing qualified DHI certified Architectural Hardware Consultant available during course of work to consult with Contractor, Architect and Owner about hardware and keying.

C. Hardware Installer: Company specializing in installing institutional door hardware and electrified door hardware with minimum 5 years documented experience.

D. Locksmith: Bonded company specializing in keying institutional door hardware with minimum 5 years documented experienced and approved by manufacturer.

1.9 REGULATORY REQUIREMENTS

A. Conform to the applicable sections of Chapter 5 of NFPA 101.

B. Conform to applicable sections of CBC.

1.10 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site, store, handle and protect in accordance with manufacturer's instructions and recommendations.

B. Package hardware items individually; label and identify package with door opening code to match hardware schedule.

C. Deliver keys to Owner by security shipment direct from hardware supplier.

D. Protect hardware from theft by cataloging and storing in secure area.

1.11 COORDINATION

A. Coordinate work of this section with other directly affected sections involving manufacture of internal reinforcement for door hardware.

1.12 WARRANTY

A. Manufacturer's Warranty: Provide special written warranty executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within specified warranty periods.

1. Failures:

a. Structural failures including excessive deflection, cracking or breakage.

b. Faulty operation.

2. Warranty Periods:

a. Locksets: 5 years from Date of Substantial Completion.

b. Manual Closers: 10 years from Date of Substantial Completion.

c. Other Hardware Components: 2 years from Date of Substantial Completion.

1.13 EXTRA MATERIALS

A. Furnish complete set of specialized tools for continued adjustment, maintenance, and removal and replacement of door hardware. Include instructions for use of tools.

1.14 MAINTENANCE SERVICE

A. Provide full maintenance by skilled employees of door hardware installer for 6 months beginning at Substantial Completion.

B. Include quarterly preventative maintenance, repair or replacement of worn or defective components, lubrication, cleaning and adjusting as required for proper door operation.

C. Provide parts and supplies matching those used in manufacture and installation of original hardware.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Hinges (Match Existing):

1. McKinney Products Company.

2. Manufacturers Offering Equal Product:

a. Hager Companies.

b. The Stanley Works.

B. Latchsets, Locksets, Deadbolts and Cylinders (Match Existing):

1. Schlage Lock Company.

2. Manufacturers Offering Equal Product:

a. Corbin Russwin Architectural Hardware.

b. Sargent.

C. Surface Closers (Match Existing):

1. Norton Door Controls.

2. Manufacturers Offering Equal Product:

a. Corbin-Russwin Architectural Hardware.

b. LCN.

D. Overhead Stops: Glynn Johnson Corporation.

E. Dome Stops and Wall Bumpers:

1. Triangle Brass Manufacturing Company, Inc.

2. Manufacturers Offering Equal Product:

a. Don-Jo Manufacturing.

b. Ives.

F. Manual Flush Bolts:

1. Triangle Brass Manufacturing Company, Inc.

2. Manufacturer Offering Equal Product: Ives.

G. Substitutions: Under provisions of Section 01 60 00.

2.2 KEYING AND KEY CONTROL

A. Provide for an interchangeable core that matches the existing keying system. Coordinate specific requirements with the Owner.

2.3 HINGES

A. Hinges shall conform to applicable requirements of ANSI A156.1 and ANSI A156.7 except where specified otherwise. Self-closing hinges shall conform to applicable requirements of ANSI A156.17.

B. Provide only template-produced units.

C. Provide standard weight hinges with anti-friction bearings.

D. Loose pin hinges for reverse beveled doors with locks shall be constructed in manner that eliminates removal of pins when door is in closed position.

E. Provide hinges with square corners for doors installed in metal frames.

F. Hinges shall be sized in accordance with the following:

1. Height:

a. Doors up to 36 inches wide: 4-1/2 inches.

2. Width: Sufficient to clear frame and trim when door swings 180 degrees.

2.4 LOCKS, LATCHES AND CYLINDERS

A. Provide lock and latch types specified from the same manufacturer.

B. Mortise Locks and Latches:

1. Heavy duty meeting or exceeding ANSI A156.13, Grade 1 Operational and Grade 3 Security, Series 1000 requirements.

2. Equipped with lever handles per CBC Section 1133B.2.5.2.

3. Trim Design Materials:

a. Levers: Wrought tubular brass or bronze.

b. Roses: Wrought brass or bronze.

4. Throw:

a. Deadbolt: 1 inch.

b. Latchbolt: 3/4 inch.

5. Backset: 2-3/4 inch.

C. Cylinders:

1. Meeting or exceeding ANSI A156.5, Grade 1.

2. Interchangeable core type with 6 pins, steel cylindrical cases, and interior non-corrosive parts.

2.5 CLOSERS

A. Closers shall conform to applicable requirements of ANSI A156.4 except where specified otherwise.

B. Closers shall be full rack and pinion type with steel spring and non-freezing hydraulic fluid.

C. Arm type shall suit individual conditions; supply parallel arm closers at reverse bevel doors and where doors swing full 180 degrees.

D. Provide installation accessories such as plates, shoe supports, spacers and adapters as required to secure closers to doors and frames.

E. Provide templates and adapters as required to install closers on doors with overhead stops.

2.6 FASTENERS

A. Supply fasteners of proper type, quality, size and finish with hardware.

B. Exposed fasteners shall be of non-ferrous metal and shall match the finish of item being fastened, as close as possible.

2.7 FINISHES

A. Finishes are identified in schedule at end of this section.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that doors and frames are ready to receive work and dimensions are as instructed by the manufacturer.

B. Verify that doors, frames and hardware are free from damage and defects.

C. Verify that doors, frames and hardware are suitable for intended use.

D. Do not begin installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and requirements of BHMA. Install hardware on fire rated doors in accordance with hardware listing.

B. Use templates provided by hardware item manufacturer.

C. Accurately and properly fit hardware.

1. Securely fasten fixed parts for smooth trouble-free non-binding operation; fit faces of mortised parts snug and flush.

2. Operating parts shall move freely without binding, sticking or excessive clearance.

D. Protect hardware from damage or marring of finish during construction; use strippable coatings; removable tapes or other acceptable means.

E. Ensure hardware displays no evidence of finish paint after final building cleanup with exception of prime coated hardware installed for finish painting. Achieve by sequence-

ing installation, removing after fitting and reinstalling after painting is completed, providing protection, cleaning to original hardware finish, or other acceptable means available.

F. Mounting Heights:

1. Conform to CBC Section 1133B.2.5 for positioning requirements for persons with disabilities. Ensure door operating hardware is mounted between 30 and 44 inches from finished floor.

2. Comply with DHI WDHS.3.

G. Install latches and bolts to automatically engage in keeper whether activated by closer or by manual operation.

H. Mount closers on room side or pull side unless otherwise indicated. Secure to doors with screws; do not through-bolt.

I. Do not install projecting hardware within lower 10 inches of door.

J. Set floor mounted door stops within 4 inches of wall. Secure with mechanical fasteners.

K. Completely remove protective materials and devices. Thoroughly clean exposed surfaces of hardware; check for surface damage prior to final cleaning.

3.3 ADJUSTING AND CLEANING

A. Initial Adjustment: Adjust and check each operation item of hardware to ensure proper operation and function.

1. Lubricate moving parts in conformance with manufacturer's instructions. Use graphite type lubricant if no other type is recommended.

2. Remove hardware items that cannot be adjusted to operate smoothly and freely and replace with properly functioning hardware.

3. Recheck, relubricate and readjust hardware installed more than 1 month prior to acceptance or occupancy of building immediately prior to final inspection.

3.4 DEMONSTRATION

A. Engage factory-authorized service representative to provide instruction for Owner's maintenance personnel in proper operation, adjustment and maintenance of hardware and hardware finishes prior to final inspection.

3.5 SCHEDULE

Group 1: Pair Outswinging Steel Doors in Steel Frame; Classroom Lock Function

8 hinges	TA714	652	MCK
1 lock	L9070R-03A	626	SCH
1 manual flush bolt	3916 x 24	626	TRM
2 overhead stops	100S-ADJ	630	GLY

END OF SECTION

SECTION 08 81 00

GLASS AND GLAZING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior glass and glazing for TIC.

2. Glazing accessories.

1.2 SUBMITTALS

A. Submit the following in accordance with the requirements of Division 1.

1. 12 inch square sample.

2. Manufacturer's data on glazing tape, shim and gaskets.

1.3 QUALITY ASSURANCE

A. Reference Standards: The applicable provisions of the following govern the work of this section.

1. FGMA - Glazing Manual and Sealant Manual.

2. ANSI Z97.1 - Performance Specification Methods of Tests for Safety Glazing Material Used in Buildings.

3. AAMA TIR-A - Glazing Guidelines.

B. Labeling: Submit a certificate stating that the glass furnished meets the specifications.

1.4 HANDLING

A. Procedure: In accordance with Division 1.

B. Storage: Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, run-off and other causes.

PART 2 PRODUCTS

2.1 GLASS

A. General:

1. Fixed Glazing Panel: One layer 1/8 inch thick clear float glass laminated to 1/8 clear float glass mirror with color and translucent interlayer. Mirror adhered to backing panel with mirror mastic. Match existing type and color within Tower Plaza Lobby.

2.2 MISCELLANEOUS GLAZING MATERIAL

A. Setting Block: Neoprene or EPDM, 80-90 durometer hardness.

B. Spacer: Neoprene or EPDM, 50-60 durometer hardness.

C. Extruded Silicone Gaskets: Custom color, heat-cured peroxide elastomeric material by GE Plastics, Inc., or equal by Dow Corning; compound blended for color to match existing glazing..

D. Preformed butyl-polyisobutylene glazing tape (do not use where it would be exposed to view):

1. Without Spacer Rod: One of the following:

a. Chem-Tape 40 by Bostik Construction Products Division.

b. Extru-Seal by Pecora Corp.

c. PTI 303 Glazing Tape by Protective Treatments, Inc.

d. Tremco 440 Tape by Tremco, Inc.

E. Sealants:

1. For all conditions, except primary seal of insulating units - General Electric Silglaze N2501 and Gesil N2600 or Dow Corning 795 or 999.

2. For primary seal of insulating units - Manufacturer's standard sealant.

F. Compressible Filler Rod:

1. Closed-cell or waterproof jacketed rod stock of synthetic rubber or plastic foam, compatible with sealants used, flexible and resilient, with 5 to 10 psi compressive strength at 25 percent deflection.

2. Do not use vinyl foam stock.

G. Cleaner, Primer and Sealer: Type recommended by sealant or gasket manufacturer.

H. Etching: Where sandblasted glass is indicated, provide uniformly sandblasted or acid-etched glass on one face. Protect treated face with electrostatically-applied protective PVC film to avoid staining until installation is complete.

2.3 FABRICATION

A. Cutting:

1. Obtain sizes from shop drawings or by field measurement. Cut glass to fit each opening with minimum edge clearances and bite on glass as recommended by glass manufacturer.

2. When glass is to be precut to sizes obtained from shop drawings, take field measurements of each opening, before glazing, to verify adequate bite on glass, and minimum edge clearance. Glaze openings which do not fall within tolerances for which precut glass has been sized only with glass specially cut to fit such openings.

3. Do not nip glass edges. Edges may be wheel cut or sawed and seamed at manufacturer's option.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine conditions and measurements affecting the work of this section at site. Make sure that openings and frames to be glazed are within allowable tolerance, plumb, level and square, and that other detrimental conditions are corrected before proceeding with installation.

3.2 STANDARDS AND PERFORMANCE

A. Each installation must withstand normal temperature changes, without failure of any kind including loss or breakage of glass and other defects in the work.

B. Protect glass from damage at all times during handling, installation and until Final Acceptance.

C. Comply with combined recommendations of glass manufacturer and manufacturer of sealants and other materials used in glazing, except where more stringent requirements are specified.

D. Comply with GAMA Glazing Manual, except as specifically recommended otherwise by the manufacturers of the glass and glazing materials.

E. Inspect each piece of glass immediately before installation and eliminate those with edge damage or face imperfections.

F. Unify appearance of each series of lights by setting each piece to match others as nearly as possible. Inspect each piece and set with pattern, draw and bow oriented in the same direction as other pieces.

3.3 PREPARATION FOR GLAZING

A. Vacuum the glazing channel and other framing members to receive glass immediately before glazing. Remove coatings which are not firmly bonded to the substrate. Verify that framing is satisfactory to receive the glass.

B. Apply primer or sealer to joint surfaces where recommended by sealant manufacturer.

3.4 GLASS INSTALLATION

A. Unless continuous gaskets are used, install setting blocks of proper size when recommended by FGMA. Use glass manufacturer's recommended size and spacing.

B. Provide spacers inside and out; use glass manufacturer's recommended size and spacing.

C. Do not cut, seam or abrade glass which is tempered or heat-strengthened. Do not nip glass. Do not install glass with edge damage.

D. Install pressurized gaskets to protrude slightly out of the channel, so as to eliminate dirt and moisture pockets.

E. Where wedge-shaped gaskets are driven into one side of the channel to pressurize the gasket on the opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when subjected to dynamic movement. Anchor gasket to stop with matching ribs, or with adhesive.

3.5 PROTECTING/CLEANING

A. Cure adhesives in compliance with its manufacturer's instructions and recommendations.

B. Protect glass from breakage immediately upon installation. Do not apply markers of any type to glass.

C. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways, before Final Acceptance, including natural causes, accidents and vandalism.

D. Maintain glass in a clean condition during construction.

E. Wash and polish smooth all glass on both faces not more than 4 days prior to Owner's acceptance of the work in each area. Comply with glass manufacturer's recommendations.

END OF SECTION

SECTION 08 91 00

FIXED AND OPERABLE LOUVERS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fixed, extruded aluminum wall louvers.

2. Fire, smoke-fusible link, horizontal installation.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Louvers shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of louver components, noise or metal fatigue caused by louver blade rattle or flutter, or permanent damage to fasteners and anchors.

B. Louver Performance Ratings: Provide louvers complying with requirements specified, as demonstrated by testing manufacturer's stock units identical to those provided, except for length and width according to AMCA 500-L.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1. For louvers specified to bear AMCA seal, include printed catalog pages showing specified models and appropriate AMCA Certified Ratings Seals.

B. Shop Drawings: For louvers and accessories, include plans, elevations, sections, details and attachments to other work. Show frame profiles and blade profiles, angles and spacing.

C. Samples: For each type of metal finish required.

D. Submittal: For louvers indicated to comply with structural performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

E. Product Test Reports: Based on tests performed according to AMCA 500-L.

PART 2 PRODUCTS

2.1 MATERIALS

A. Aluminum Extrusions: ASTM B221M, Alloy 6063-T4.

B. Aluminum Sheet: ASTM B209M, Alloy 3003 with temper as required for forming.

C. Galvanized Steel Sheet: ASTM A653M, G60 zinc coating, mill phosphatized.

D. Stainless Steel Sheet: ASTM A240M, Type 304, No. 4 finish.

E. Fasteners: Use types and sizes to suit unit installation conditions.

2.2 FABRICATION, GENERAL

A. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.

B. Join frame members to each other and to fixed louver blades with fillet welds concealed from view welds, threaded fasteners, or both, as standard with louver manufacturer unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.

2.3 FIXED, EXTRUDED ALUMINUM LOUVERS

A. Horizontal Non-Drainable Louver Standard Blade:

1. Basis of Design Product: Architectural Louver, Model E2JS. Subject to compliance with requirements; provide the specified product or comparable product by one of the following:

   a. Manufacturers of equivalent products submitted and approved in accordance with Section 01 60 00, Product Substitution Procedures.

2. Louver Depth: 2 inches (50 mm).

3. Frame and Blade Nominal Thickness: Not less than 0.063 inch (2.03 mm) for blades and frames.

4. Louver Performance Ratings: Free area - 48%.

2.4 FUSIBLE LINK

A. 1 hour rated, leak Class I, UL/cUL555 - corridor rated.

2.5 ALUMINUM FINISHES

A. High Performance Organic Finish: 3 coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pre-treat and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

1. Color and Gloss: As selected by Architect from manufacturer's full range.

PART 3 EXECUTION

3.1 INSTALLATION

A. Locate and place louvers and vents level, plumb and at indicated alignment with adjacent work.

B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weather-tight connection.

C. Provide perimeter reveal and openings of uniform width for sealants and joint fillers, as indicated.

D. Repair damaged finishes so no evidence remains of corrective work. Return items that cannot be refinished in the field to the factory and refinish entire unit or provide new units.

E. Protect galvanized and nonferrous metal surfaces that will be in contact with concrete, masonry or dissimilar metals from corrosion and galvanic action by applying a heavy coating of bituminous paint.

END OF SECTION

SECTION 09 29 00

GYPSUM BOARD SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Gypsum board finishes.

B. Trim and accessories.

C. Taped and sanded joint treatment.

1.2 RELATED SECTIONS

A. Section 09 81 00 - Acoustical Insulation.

1.3 REFERENCES

A. ASTM C36 - Specification for Gypsum Wallboard.

B. ASTM C442 - Specification for Gypsum Backing Board.

C. ASTM C475 - Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

D. ASTM C840 - Specification for Application and Finishing of Gypsum Board.

E. ASTM C1002 - Specification for Steel Drill Screws for the Application of Gypsum Board.

F. CBC - California Building Code, 2001 edition.

G. GA 201 - Gypsum Board for Walls and Ceilings.

H. GA 214 - Recommended Specifications for Levels of Gypsum Board Finish.

I. GA 216 - Recommended Specifications for the Application and Finishing of Gypsum Board.

1.4 SUBMITTALS

A. Product Data: Provide product data on gypsum board, gypsum board trim, control joints and fasteners, joint tape and compound.

B. Manufacturer's Certificates: Certify that taping compounds contain no asbestos.

1.5 QUALITY ASSURANCE

A. Perform gypsum board systems work in accordance with recommendations of GA 201, GA 214 and GA 216 unless otherwise specified in this section.

B. Keep copy of GA 201, GA 214 and GA 216 with Superintendent.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturer of gypsum board systems with minimum 10 years documented experience.

B. Applicator: Company specializing in application of commercial gypsum board systems work with minimum 5 years documented experience.

1.7 REGULATORY REQUIREMENTS

A. Fire rated partitions comply with CBC Section 709.

1.8 MOCK-UP

A. Before taping gypsum board assemblies, install mockup of at least 50 sq ft in surface area to demonstrate aesthetic effects and qualities of materials and execution for surfaces with taped to match existing finishes.

B. Locate as directed by Architect.

C. Simulate finished lighting conditions for review of mockups.

D. Remove and rebuild surfaces not meeting specified requirements as directed by Architect.

E. Surface finish of accepted mock-up establishes minimum standard of quality and workmanship of gypsum board joint treatment on job.

F. Retain and protect accepted mock-up in undisturbed condition during work of this section.

G. Accepted mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site, store, handle and protect in accordance with manufacturer's instruction and recommendations.

B. Deliver materials to site in original unopened containers or bundles clearly marked with manufacturer's name, brand name, size, grade, testing agency listing if applicable and other pertinent data.

C. Store materials in original packaging with seal unbroken and labels intact until time of use.

D. Protect materials from damage, dirt and moisture.

E. Stack gypsum board neatly, flat, with care to avoid damage to edges, ends and surfaces.

1.10 ENVIRONMENTAL REQUIREMENTS

A. Maintain areas to receive gypsum board at uniform temperature between 55 and 75 degrees F minimum 24 hours before, during and after application and joint finishing.

B. Provide adequate ventilation to eliminate excessive moisture minimum 24 hours before, during and after gypsum board application and joint finishing.

1. Under slow drying conditions, allow additional drying time between coats of joint treatment.

2. During hot, dry weather, protect installed materials from drafts.

1.11 COORDINATION

A. Coordinate installation of gypsum board with installation of framing and with installation of electrical and mechanical work.

B. Coordinate installation of gypsum board with installation of sound insulation specified under Section 09 81 00. Ensure insulation is installed in framing prior to gypsum board.

PART 2 PRODUCTS

2.1 GYPSUM BOARD

A. Provide gypsum board materials in accordance with recommendations of GA 216.

B. Standard Gypsum Board: ASTM C36; 1/2 and 5/8 inch thick; maximum permissible length; ends square cut; tapered edges.

C. Fire-Rated and Sound-Rated Gypsum Board: ASTM C36; UL rated with Type X fire resistant core; 5/8 inch thick; maximum permissible length; ends square cut; tapered edges.

2.2 ACCESSORIES

A. Provide gypsum board accessories in accordance with GA 216.

B. Metal Trim: ASTM C1047; paper tape laminated to rust resistant metal form; tape-on installation; as manufactured by Beadex Brand Paper Faced Metal Drywall Bead and Trim, Phillips Manufacturing Company KwikStik Paper Faced Metal Products or equal products substituted under provisions of Section 01 60 00.

1. Outside 90° Corner: Reduced height bead; equal leg; minimum 1 x 1 inch metal corner concealed by paper tape extending minimum 11/16 inch beyond metal each side; Beadex Style Micro-Bead or Phillips #P1 Micro Bead - Tape On.

2. Inside 90° Corner: No bead; equal leg; minimum 3/8 x 3/8 inch metal corner concealed by paper tape extending minimum 5/8 inch beyond metal on each side; Beadex Style B2 or Phillips #P2 Tape On.

3. Outside Offset Corner: Standard bead; equal or unequal leg; minimum 3/4 x 1/2 inch metal corner concealed by paper tape extending minimum 5/8 inch beyond metal each side; Beadex Style B1 OS or Phillips #P1 OS Splay - Tape On.

4. Inside Offset Corner: No bead; equal leg; minimum 5/8 x 5/8 inch metal corner concealed by paper tape extending minimum 5/8 inch beyond metal on each side; Beadex Style B2 OS or Phillips #P2 OS Tape On.

5. Edge Trim: Bead; minimum 13/16 x 5/84 inch steel angle concealed by paper tape extending minimum 1-1/8 inch beyond long leg; Beadex B4 Series or Phillips #P4 Trim.

C. Control Joints: ASTM C1047; roll formed zinc or galvanized steel; 3/32 inch grounds; 1/4 inch wide x 7/16 inch deep "V" reveal; removable strip protection; United States Gypsum's Control Joint #093, National Gypsum Company's #0.093 Zinc Control Joint or equal product substituted under provisions of Section 01 60 00.

1. Snap-In Trim: 1/2 inch deep; configured to fit 3/4 inch wide x 5/8 inch deep reveal with lip extending over edges of reveal; clear anodized finish; Fry #DRM-SNAP-IN-625 or Gordon #534.

D. Fasteners: GA 201; ASTM C1002.

1. To Metal: Type S bugle head drywall screws; 1-1/4 inch or length sufficient to penetrate framing minimum 3/8 inch, whichever is greater.

2. To Gypsum Backing Board or Base Ply: Type G; 1-1/2 inches long.

E. Laminating Adhesive: GA 201, GA 216 and ASTM C475; setting type powder gypsum board joint compound; rapid chemical hardening; low shrinkage; high bond strength; recommended by manufacturer for laminating multiple layer fire-rated assemblies.

F. Reinforcing Tape: GA 201, GA 216 and ASTM C475; cross-fibered paper tape.

G. Joint Compounds:

1. For Other Gypsum Boards: GA 201, GA 216 and ASTM C475; ready-mixed or powder type for field mixing; formulation of each coat compatible with formulation of previous and successive coats.

a. For Prefilling: Setting type compound.

b. For Embedding Tape and First Coat: Setting type compound.

c. For Installing Paper Faced Metal Trim: Setting type.

d. For Intermediate Coats Over Tape: Sandable setting type.

e. For Final Coat Over Tape: Sandable setting type.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that site conditions are ready to receive work and opening dimensions are as instructed by manufacturer.

B. Verify that framing and furring are installed and are properly secured, spaced and aligned so that specified tolerances can be achieved.

C. Verify that blocking, backing and bracing for fixtures, equipment, accessories, hardware and other items secured to walls are installed and are properly secured and aligned so that specified tolerances can be achieved.

D. Verify that mechanical, plumbing, electrical and other items to be enclosed in walls and partitions are installed, inspected and approved.

E. Do not begin installation until unsatisfactory conditions have been corrected.

3.2 GYPSUM BOARD INSTALLATION

A. Install gypsum board in accordance with recommendations of ASTM C840 and GA 216.

B. Install gypsum board in sound rated and fire rated partitions in accordance with listed designs indicated on Drawings.

C. Where listed designs are proprietary, use products of the listed manufacturer throughout the system. Do not mix components of alternate proprietary design.

D. For non-rated partitions, install single layer standard gypsum board in most economical direction with ends and edges occurring over firm bearing.

E. For double layer applications, use gypsum boards for first and second layer.

F. Use screws when fastening gypsum board to metal and to wood furring and framing. Use screws in combination it laminating adhesive at double layer applications.

1. In rated assemblies, space fasteners in accordance with listed designs.

2. In non-rated partitions, space fasteners in accordance with CBC Table 25-G.

G. Make cut-outs in gypsum board regular; do not fracture core or tear covering of gypsum board.

H. Minimize penetrations of sound rated and acoustically insulated construction. Penetrate only where necessary; coordinate application of acoustical sealant to fully seal annular space.

1. Where ducts, conduit and piping greater than 3-inches in diameter penetrate acoustically insulated partitions and ceilings, provide clearance of 1 inch ± 1/4 inch at perimeter of penetration.

2. Where conduit and piping less than 3-inches in diameter penetrate acoustically insulated partitions and ceilings, provide clearance of 1/4 inch ± 1/8 inch at perimeter of penetration.

I. Place metal trim at external corners, internal corners and where gypsum board terminates, abuts dissimilar materials and as detailed. Use longest practical lengths.

J. Place control joints consistent with lines of building spaces as indicated. Space control joints as indicated and:

1. Where partition, wall or ceiling traverses a construction joint in base building structure.

2. Where partition or wall runs in uninterrupted straight plane exceeding 30 linear feet.

3. In ceilings with perimeter relief so that distance between control joints does not exceed 50 feet and total area between joints does not exceed 2500 sq ft.

4. In ceilings with perimeter relief where ceiling members change direction and intermediate blocking is not installed.

5. In ceilings without perimeter relief so that distance between control joints does not exceed 30 feet and total area between joints does not exceed 900 sq ft.

6. In ceilings without perimeter relief where ceiling members change direction.

3.3 GYPSUM BOARD JOINT TREATMENT

A. Tape, fill and sand joints, fastener heads, edges and corners to the following levels in accordance with GA 214:

1. Gypsum Board Concealed Above Ceilings: Level 2 except as required otherwise by listed designs for fire and sound construction.

a. Embed tape in joint compound at joints and interior angles.

b. Remove excessive joint compound; tools marks and ridges are acceptable.

2. Gypsum Board Within Lobby: Level 5.

a. Embed tape in joint compound at joints and interior angles.

b. Apply 3 separate coats of joint compound over joints, angles, fastener heads, and accessories.

c. Finish joint compound smooth and free of tool marks and ridges.

d. Apply thin coat of joint compound over entire surface.

1) Apply to thickness that no difference in color can be detected on surface.

2) Finish skim coat smooth and free of tool marks and ridges.

3. Other Gypsum Board: Level 4.

a. Embed tape in joint compound at joints and interior angles.

b. Apply 3 separate coats of joint compound over joints, angles, fastener heads, and accessories.

c. Finish joint compound smooth and free of tool marks and ridges.

B. Feather each successive coat beyond edge of previous coat so that maximum camber is 1/32 inch.

1. At tapered edges of gypsum board, feather each successive coat 2 inches beyond edge of previous coat.

2. On square edges of gypsum board, feather each successive coat 4 inches beyond edge of previous coat.

3. At fastener heads, feather each successive coat 2 inches beyond edge of previous coat.

4. At corner beads and edge trim, feather each successive coat 2 inches beyond edge of previous coat.

C. Allow joint compound to thoroughly dry between coats.

D. Sand joint compound between coats. Lightly sand last coat to eliminate laps and to smooth surface while taking care not to roughen face paper of gypsum board.

E. Backfill cutouts with joint compound so that annular space does not exceed 1/8 inch.

3.4 TOLERANCES

A. Maximum Variation from True Flatness: 1/8 inch in 10 feet in any direction.

3.5 ADJUSTING

A. Repair evidence of popping or ridging fasteners.

END OF SECTION

SECTION 09 81 00

ACOUSTICAL INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Acoustical batt insulation.

B. Acoustical safing insulation.

C. Acoustical sealant and accessories.

1.2 RELATED SECTIONS

A. Section 05 40 00 - Cold Formed Metal Framing: Metal stud framing.

B. Section 09 29 00 - Gypsum Board Systems: Gypsum board finish at sound-rated partition and ceiling construction.

1.3 REFERENCES

A. ASTM C423 - Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

B. ASTM C665 - Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

C. ASTM D1056 - Flexible Cellular Materials - Sponge of Expanded Rubber.

D. ASTM E612 - Test Method for Mineral Fiber Block and Board Insulation.

E. ASTM E84 - Test Method Surface Burning Characteristics of Building Materials.

F. CBC - California Building Code, latest edition.

1.4 SUBMITTALS

A. Product Data: Provide data on acoustical insulation batts, sealant and accessories.

B. Manufacturer's Installation Instructions: Submit special preparation criteria and sequence of installation for acoustical sealant.

C. Manufacturer's Certificates: Certify that products comply with specified requirements.

1.5 QUALIFICATIONS

A. Insulation Manufacturer: Company specializing in the manufacture of acoustical batt insulation with minimum 3 years documented experience.

B. Sealant Manufacturer: Company specializing in manufacture of acoustical insulation with minimum 3 years documented experience.

C. Installer: Company specializing in installation of commercial acoustical insulation and sealants with minimum 3 years documented experience and approved by the insulation manufacturers.

1.6 REGULATORY REQUIREMENTS

A. Conform to CBC Section 804 for combustibility requirements for finish materials.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver product to site, store, handle and protect in accordance with manufacturer's instructions and recommendations.

B. Protect products from moisture in shipment, storage and handling.

C. Do not deliver products until building is enclosed and "wet" work such as plaster and concrete is complete and cured to condition of equilibrium.

1.8 COORDINATION

A. Coordinate installation of insulation with installation of framing specified under Section 05 40 00 - Cold Formed Metal Framing and with installation of gypsum board specified under Section 09 29 00 - Gypsum Board.

B. Coordinate application of acoustical sealants with installation of gypsum board specified under Section 09 29 00 - Gypsum Board.

PART 2 PRODUCTS

2.1 ACOUSTICAL BATT INSULATION

A. Manufacturers:

1. CertainTeed Corporation: CertaPro AcoustaTherm Batts.

2. Manufacturers Offering Equal Products:

a. Johns Manville International, Inc.

b. Owens-Corning Fiberglass Corporation.

3. Substitutions: Under provisions of Section 01 60 00.

B. Acoustical Batt Insulation: ASTM C665, Type I; preformed fiberglass batts; unfaced; friction fit type; 3-1/2 inch thick; flame spread not to exceed 25 and smoke developed not to exceed 50 when tested in accordance with ASTM E84.

1. Framed Partitions and Ceilings: Width to match framing spacing; maximum length in place.

2.2 ACOUSTICAL SAFING INSULATION

A. Manufacturers:

1. United States Gypsum Company/Thermafiber LLC: Thermafiber Sound Attenuation Fire Blankets.

2. Substitutions: Under provisions of Section 01 60 00.

B. Acoustical Safing Insulation: ASTM C655, Type I; preformed mineral wool batts; unfaced; friction fit type; 4.0 lbs/cu ft density; 1 inch thick; flame spread not to exceed 15 and smoke developed not to exceed 0 when tested in accordance with ASTM E84.

2.3 ACOUSTICAL SEALANTS AND ACCESSORIES

A. Flexible Acoustical Sealant:

1. Manufacturers:

a. Pecora Corporation: BA-89 Acoustical Sealant.

b. Tremco, Inc.: Tremco Acoustical Sealant.

c. United States Gypsum Company: Sheetrock Brand Acoustical Sealant.

d. Substitutions: Under provisions of Section 01 60 00.

2. Sealant Properties: Non-hardening non-skinning flexible type recommended for use in conjunction with gypsum board; capable of spanning 1/2 inch wide x 3/8 inch deep gaps.

B. Expanding Foam Acoustical Sealant:

1. Manufacturers:

a. Macklanburg-Duncan Co.: Polycel Expanding Insulating Foam Sealant.

b. Substitutions: Under provisions of Section 01 60 00.

2. Sealant Properties: Single-component expanding urethane foam formulated to fill gaps and holes too large for conventional sealants; fire retardant; UL Classified; HCFC 22 blowing agent.

C. Acoustical Sheet Caulking: Lowry's Electrical Box Sealer or equal product substituted under provisions of Section 01 60 00.

D. Backing Rod: ASTM D1056; round closed cell neoprene or polyethylene foam rod; oversized 30 to 50 percent; compatible with sealant.

E. Sleeves: Galvanized sheet metal; cylindrical; gauge, seal lap and length as required to repair openings in gypsum board.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate conditions are ready to receive work of this section.

B. Verify that building is enclosed and weathertight and that roofing is complete.

C. Do not begin installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION - ACOUSTICAL INSULATION

A. Install acoustical insulation in sound-rated partitions and ceilings and where indicated on Drawings. Install in accordance with manufacturer's instructions and recommendations.

B. Install acoustical batt insulation in framed partitions and ceilings to fill framing cavities. Install acoustical batt insulation in suspended ceiling to fit between runners; cut to fit irregular grid.

C. Pack acoustical batt insulation behind and around perimeter of piping and electrical boxes in sound-rated partition and ceiling cavities.

D. Install acoustical safing insulation at duct and pipe penetrations of sound-rated partitions and ceilings.

3.3 APPLICATION - ACOUSTICAL SEALANTS AND ACCESSORIES

A. Seal perimeters and penetrations of sound-rated gypsum board partitions and ceilings airtight with acoustical sealant. Place sealant in partitions in accordance with manufacturer's instructions.

B. Sleeves and Backer Rods:

1. Where perimeter clearance at penetration exceeds 3/4 inch, install sheet metal sleeve within partition packed with safing insulation.

2. Where perimeter clearance or gap exceeds 3/8 inch, install backer rod.

C. Acoustical Sheet Caulking: Apply acoustical sheet caulking to backs and sides of electrical boxes and other rough in boxes occurring in sound rated walls.

D. Flexible Acoustical Sealant:

1. Apply continuous bead of flexible acoustical sealant gypsum board face layer at head and sill conditions of sound-rated partitions and around perimeter of sound-rated ceilings.

2. In addition, apply sealant behind control joints and in door frame immediately prior to inserting gypsum board.

3. Seal penetrations airtight. Seal through penetrations on both sides of partitions; seal membrane penetrations including those for conduit, piping, electrical boxes, panels boards and equipment around perimeter at face.

E. Expanding Foam Acoustical Sealant: Apply expanding foam sealant at multiple pipe and conduit penetrations of sound-rated partitions and ceilings and where indicated on Drawings.

END OF SECTION